



Section 7

Other/Source Controls (SCs)

7.1 Introduction

This section presents the BMP fact sheets for the Other/ Source Controls (SCs). SCs predominately focus on practices relating to source control measures that reduce pollutants in storm water discharges.

This section contains the following BMP fact sheets.

- | | |
|---------|--------------------------------|
| SC - 01 | Housekeeping Practices |
| SC - 02 | Safer Alternative Products |
| SC - 03 | Material Storage Control |
| SC - 04 | Vehicle Leak and Spill Control |

Each fact sheet has a quick reference guide indicating what pollutant constituents the BMP is targeting and implementation requirements.

The BMPs presented in this section are intended to coincide with non-construction activity. Additional details are provided in sections covering Construction Management Practices (CP) for practices that are intended to be used for construction activities.



Section 7 Other/Source Controls (SCs)

ACTIVITY: Housekeeping Practices

SC-01

**Targeted Constituents**

• • • Significant Benefit

• • • Partial Benefit

• • • Low or Unknown Benefit

• • • Sediment

• • • Heavy Metals

• • • Floatable Materials

• • • Oxygen Demanding Substances

• • • Nutrients

• • • Toxic
Materials• • • Oil &
Grease

• • • Bacteria & Viruses

• • • Construction Wastes

Implementation Requirements

• • • High

• • • Medium

• • • Low

• • • Capital Costs

• • • O & M Costs

• • • Maintenance

• • • Suitability for Slopes >5%

• • • Training

Description

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals.

Approach

- Pattern a new program after the many established programs from municipalities around the state and country. Integrate this best management practice as much as possible with existing programs at your municipality.
- This BMP has two key audiences, municipal employees and the general public.
- Implement this BMP in conjunction with SC-02, Safer Alternative Products.
- For a quick reference on disposal alternatives for specific wastes, see Table ICP-12-1, ICP-12, Employee Training.

Requirements

- Cost Considerations
 - • • The primary cost is for staff time as noted
- Regulations
 - • • There are no regulatory requirements to this BMP. Existing regulations already require municipalities to properly store, use, and dispose of hazardous materials.
- Administrative /Staffing
 - • • Staff to train municipal employees and to coordinate public education efforts.
- Equipment
 - • • There are no major equipment requirements to this BMP.

- Training
 - Municipal employees who handle potentially harmful materials should be trained in good housekeeping practices. Personnel who use pesticides must be trained in their use.

**Public
Education/
Participation**

- • • Public awareness is a key to this BMP.

Limitations

- There are no major limitations to this best management practice.

Municipal facilities should implement good housekeeping measures. Municipalities should develop controls on the application of pesticides, herbicides, and fertilizers in public right-of-ways and at municipal facilities. Controls may include:

- List of approved pesticides and selected uses;
- Product and application information for users;
- Equipment use and maintenance procedures; and
- Record keeping and public notice procedures.

For the general public, municipalities should establish a public education program that provides information on such items as storm water pollution and the beneficial effects of proper disposal on water quality; reading product labels; safer alternative products; safe storage, handling, and disposal of hazardous products; list of local agencies; and emergency phone numbers. The programs listed below have provided this information through brochures or booklets that are available at a variety of places including municipal offices, household hazardous waste collection events or facilities, and public information fairs.

The following discussion provides some general information on good housekeeping that may be provided to the general public. More specific information on particular chemicals may be found in the references listed below.

- Always use caution when handling any hazardous household product. Many products contain toxic chemicals that can cause severe injury or death.
- Store household hazardous products securely and away from children, pets, and sources of heat, sparks, and flames.
- Store products in their original containers and keep them well labeled. Do not store chemicals in food containers.
- Read and follow use instructions.
- Avoid contact with eyes and skin. Wear gloves and eye protection when using hazardous substances. Do not wear contact lenses which can absorb hazardous vapors.
- Work in only well ventilated areas.

- Use up all of the product before disposing or give extra to friends, neighbors or community groups.
- Do not dispose of household hazardous waste:
 - in trash,
 - down storm drains or into creeks,
 - down sink or toilet,
 - onto the ground, or
 - by burning.

Do dispose of hazardous wastes at household hazardous waste collection events or facilities.

**Primary
References**

California Storm Water Best Management Practice Handbooks, CDM et.al. for the California SWQTF, 1993.

**Subordinate
References**

The Bay Begins at Your Door (Brochure), Santa Clara Valley Nonpoint Source Pollution Control Program, (No date).

Guide to Hazardous Products Around the Home (Booklet), Household Hazardous Waste Project, 1989.

Hazardous Household Products: A Guide to the Disposal of Hazardous Household Products and the Use of Non-Hazardous Alternatives, California Department of Toxic Substance Control.

Household Cleaners and Polishes, Chemical Hazards in the Home (Brochure), Golden Empire Health Planning Center, (No date).

Solvents, Chemical Hazards in the Home (Brochure), Golden Empire Health Planning Center, (No date).

Take me shopping: A Consumer Guide to Safe Alternatives for Household Hazardous Products (Booklet), Santa Clara County and City of Palo Alto, 1992.

Your Guide to Less Toxic Shopping: Safer Alternatives for Your Home and Life! (Booklet), San Francisco Household Hazardous Waste Program, 1992.

ACTIVITY: Safer Alternative Products**SC-02**

Graphic: San Francisco Household
Haz Waste Program, 1992

**Targeted Constituents**

• • • Significant Benefit

• • • Partial Benefit

• • • Low or Unknown Benefit

• • • Sediment

• • • Heavy Metals

• • • Floatable Materials

• • • Oxygen Demanding Substances

• • • Nutrients

• • • Toxic Materials

• • • Oil &
Grease

• • • Bacteria & Viruses

• • • Construction Wastes

Implementation Requirements

• • • High

• • • Medium

• • • Low

• • • Capital Costs

• • • O & M Costs

• • • Maintenance

• • • Suitability for Slopes >5%

• • • Training

Description

Promote the use of less harmful products. Alternatives exist for most product classes including fertilizers, pesticides, cleaning solutions, and automotive and paint products.

Approach

- Pattern a new program after the many established programs from municipalities around the state and country. Integrate this best management practice as much as possible with existing programs at your municipality.
- This BMP has two key audiences, municipal employees and the general public.
- Implement this BMP in conjunction with SC-01, Housekeeping Practices.
- For a quick reference on disposal alternatives for specific wastes, see Table ICP-12-1, ICP-12, Employee Training.

Requirements

- Cost Considerations
 - The primary cost is for staff time as noted below.
- Regulations
 - This BMP has no regulatory requirements. Existing regulations already require municipalities to reduce the use of hazardous materials. Safer alternatives for use by the general public are presented through education rather than required by regulation.
- Administrative / Staff
 - Staff to educate municipal employees and to coordinate public education efforts.
- Equipment
 - There are no major equipment requirements to this BMP.

**Public
Education /
Participation**

- Training
 - Municipal employees who handle potentially harmful materials should be trained in the use of safer alternatives.
 - Purchasing departments should be encouraged to procure less hazardous materials
- Awareness is the key to this BMP. It promotes a willingness to try alternative and to modify old behaviors.

Limitations

- Alternative products may not be available, suitable, or effective in every case.

Employees at municipal facilities and the general public can both be educated about safer alternatives by using information developed by a number of municipalities and organizations including the programs listed below.

The following discussion provides some general information on safer alternatives. More specific information on particular hazardous materials and the available alternatives may be found in the references listed below.

- Automotive products – Less toxic alternatives are not available for many automotive products, especially engine fluids. But there are alternatives to car polishes, degreasers, windshield washer solution. Re-refined, recycled oil is also becoming available.
- Cleaners – Vegetable-based or citrus-based soaps are available to replace petroleum-based soaps/detergents.
- Paint products - Water-based paints, wood preservatives, stains, and finishes are available.
- Pesticides – Specific alternative products or methods exist to control most insects, fungi, and weeds.
- Fertilizers – Compost and soil amendments are natural alternatives.

**Primary
References**

California Storm Water Best Management Practice Handbooks, CDM et.al. for the California SWQTF, 1993.

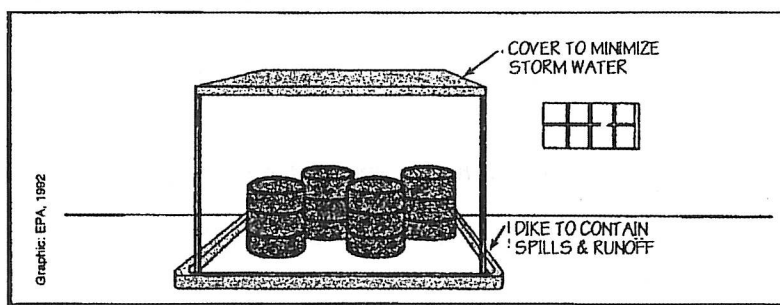
Caltrans Storm Water Quality Handbooks, CDM et.al. for the California Department of Transportation, 1997.

**Subordinate
References**

Dry Weather Deposition and Flushing for Combined Sewer Overflow Pollution Control, U.S. EPA, EPA-600/2-79-133, August 1979.

ACTIVITY: Material Storage Control

SC – 03

**Targeted Constituents**

• • • Significant Benefit

• • • Partial Benefit

• • • Low or Unknown Benefit

• • Sediment

• • • Heavy Metals

• • • Floatable Materials

• • • Oxygen Demanding Substances

• • Nutrients

• • • Toxic Materials

• • • Oil &
Grease

• • • Bacteria & Viruses

• • • Construction Wastes

Implementation Requirements

• • • High

• • • Medium

• • • Low

• • • Capital Costs

• • • O & M Costs

• • • Maintenance

• • • Suitability for Slopes >5%

• • • Training

Description

Prevent or reduce the discharge of pollutants to storm water from material delivery and storage by minimizing the storage of hazardous materials on-site, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice primarily covers material delivery and storage for municipal operations. For material storage related to the general public (e.g., storage of pesticides) refer to SC-01 Housekeeping Practices.

Approach

• • • The key is to design and maintain material storage areas that reduce exposure to storm water:

- Store materials inside or under cover on paved surfaces.
- Use secondary containment.
- Minimize storage and handling of hazardous materials.
- Inspect storage areas regularly.

• • • For a quick reference on disposal alternatives for specific wastes, see Table ICP-12-1, ICP-12, Employee Training.

Requirements

• • • Cost Considerations

- Will vary depending on the size of the facility and the necessary controls.

• • Regulations

- Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code and the National Electric Code.

**Public
Education/
Participation**

- • • Equipment
 - Keep an ample supply of spill cleanup materials near the storage area.
- • • Training
 - Employees should be well trained in proper material storage.
- • • Employee education is paramount for successful BMP implementation.

Limitations

The following materials are commonly stored at municipal facilities:

- • • Pesticides and herbicides,
- • • Fertilizers,
- • • Detergents,
- • • Petroleum products such as fuel, oil, and grease, and
- • • Other hazardous chemicals such as acids, lime, glues, paints, solvents, and curing compounds.

Storage of these materials can pose the following risks:

- • • Injury to workers or visitors,
- • • Groundwater contamination,
- • • Soil contamination, and
- • • Storm water contamination.

Therefore, the following steps should be taken to minimize your risk:

- • • Employees trained in emergency spill cleanup procedures should be present when dangerous waste, liquid chemicals, or other wastes are delivered.
- • • Store materials inside or under cover whenever possible.
- • • Designate a secure material storage area that is paved with Portland cement concrete, free of cracks and gaps, and impervious in order to contain leaks and spills.
- • • Drums stored in an area where unauthorized persons may gain access must be secured to prevent accidental spillage, pilferage, or any unauthorized use.
- • • Whenever possible, store materials in secondary containment.
- • • Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containment.
- • • If drums must be kept uncovered, store them at a slight angle to reduce ponding of rainwater on the lids and to reduce corrosion.
- • • Storage of reactive, ignitable, or flammable liquids must comply with the local codes. Contact the Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements.
- • • When designing a storage area, include measures to prevent and contain spills.
- • • Keep an accurate, up-to-date inventory of the materials delivered and stored on-site.
- • • Keep your inventory down. Store only the amount you need, for only as long as you need it.
- • • Store as few hazardous materials on-site as possible.
- • • Handle hazardous materials as infrequently as possible.
- • • Try to keep chemicals in their original containers, and keep them well labeled.
- • • Train employees in proper storage measures.
- • • Keep the designated storage area clean and well organized.

- • • Conduct routine weekly inspections and check for external corrosion of material containers.

**Primary
References**

California Storm Water Best Management Practice Handbooks, CDM et.al. for the California SWQTF, 1993.

**Subordinate
References**

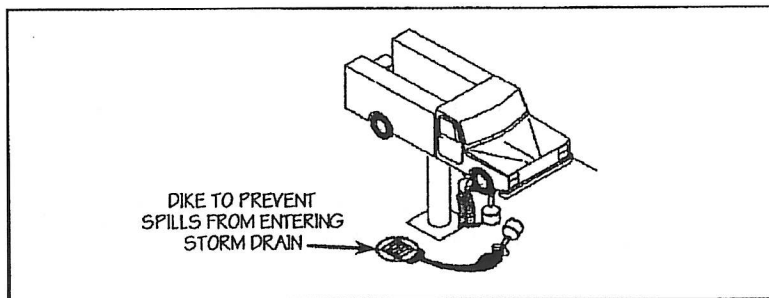
Best Management Practices for Industrial Storm Water Pollution Control, Santa Clara Valley Nonpoint Source Pollution Control Program, 1992.

Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices, USEPA, July 1992.

Water Quality Best Management Practices Manual, City of Seattle

ACTIVITY: Vehicle Leak and Spill Control

SC – 04

**Targeted Constituents**

• • • Significant Benefit		• • • Partial Benefit		• • • Low or Unknown Benefit	
• • Sediment	• • Heavy Metals	• • • Floatable Materials	• • • Oxygen Demanding Substances		
• • Nutrients	• • Toxic Materials	• • • Oil & Grease	• • • Bacteria & Viruses	• • • Construction Wastes	

Implementation Requirements

• • • High		• • • Medium		• • • Low	
• • • Capital Costs	• • • O & M Costs	• • • Maintenance	• • • Suitability for Slopes >5%	• • • Training	

Description

Prevent or reduce the discharge of pollutants to storm water from vehicle leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

Approach

Vehicles will leak and spill fluids. The key is to reduce the frequency and severity of leaks and spills, and when they do occur, to prevent or reduce the environmental impacts.

- • • Perform fluid removal and changes inside or under cover on paved surfaces.
- • • Properly store hazardous materials and waste.
- • • Have spill cleanup supplies readily available.
- • • Use dry cleanup methods.
- • • For a quick reference on disposal alternatives for specific wastes, see Table 4.1, ICP-12-1, Employee Training.

Requirements

- • • Cost Considerations
 - Preventions of leaks and spills is inexpensive. Treatment and/or disposal of contaminated soil or water can be quite expensive.
- • Regulations
 - This is not a major element of this best management practice.
- • • Equipment
 - Keep ample supplies of spill control and cleanup materials at municipal facilities, near storage and maintenance areas.
 - Updated spill cleanup materials as changes occur in the types of chemicals on-site.

**Public
Education/
Participation**

- • • Training
 - Training is crucial to reducing the frequency, severity, and impacts of leaks and spills.
- • • Most effective in small diameter pipes (36-inch (0.91 m) diameter pipe or less, depending on water supply and sediment collection capacity).
- • • Available water source.
- • • May have difficulty finding downstream area to collect sediments.
- • • Requires liquid/sediment disposal.
- • • Disposal of flushed effluent to sanitary sewer may be prohibited in some areas.

Limitations

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet (213.3 m). At this maximum recommended length, the percent removal efficiency from the pipe at the time of flushing ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm sewer flushing.

**Primary
References**

California Storm Water Best Management Practice Handbooks, CDM et.al. for the California SWQTF, 1993.

Caltrans Storm Water Quality Handbooks, CDM et.al. for the California Department of Transportation, 1997.

**Subordinate
References**

Dry Weather Deposition and Flushing for Combined Sewer Overflow Pollution Control, U.S. EPA, EPA-600/2-79-133, August 1979.